

Stream and Water Quality Monitoring in Maryland 2016



Neal Eshleman

*Ecological Sciences and Applications
Versar, Inc.
Columbia, MD*

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Overview

- Versar's Columbia, MD office supports monitoring efforts for federal, state, and local jurisdictions and private clients
- Versar works in close coordination with MBSS
- Versar has been conducting biological monitoring of streams in Maryland since 1990



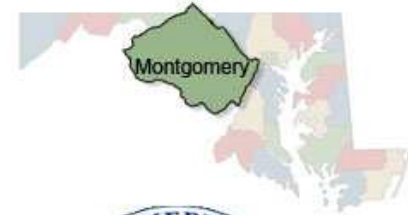
Monitoring for Maryland Counties

- Frederick County, Maryland
 - Have conducted monitoring here since 1999
- Anne Arundel County, Maryland
 - Have conducted monitoring here since 2012



Monitoring for Maryland Counties

- Montgomery County, Maryland
 - Have conducted monitoring here since 1996
- Baltimore County, Maryland
 - Have conducted monitoring here since 2013



Monitoring for Other Entities

- Other Private Clients
 - Miscellaneous support as requested

Methods

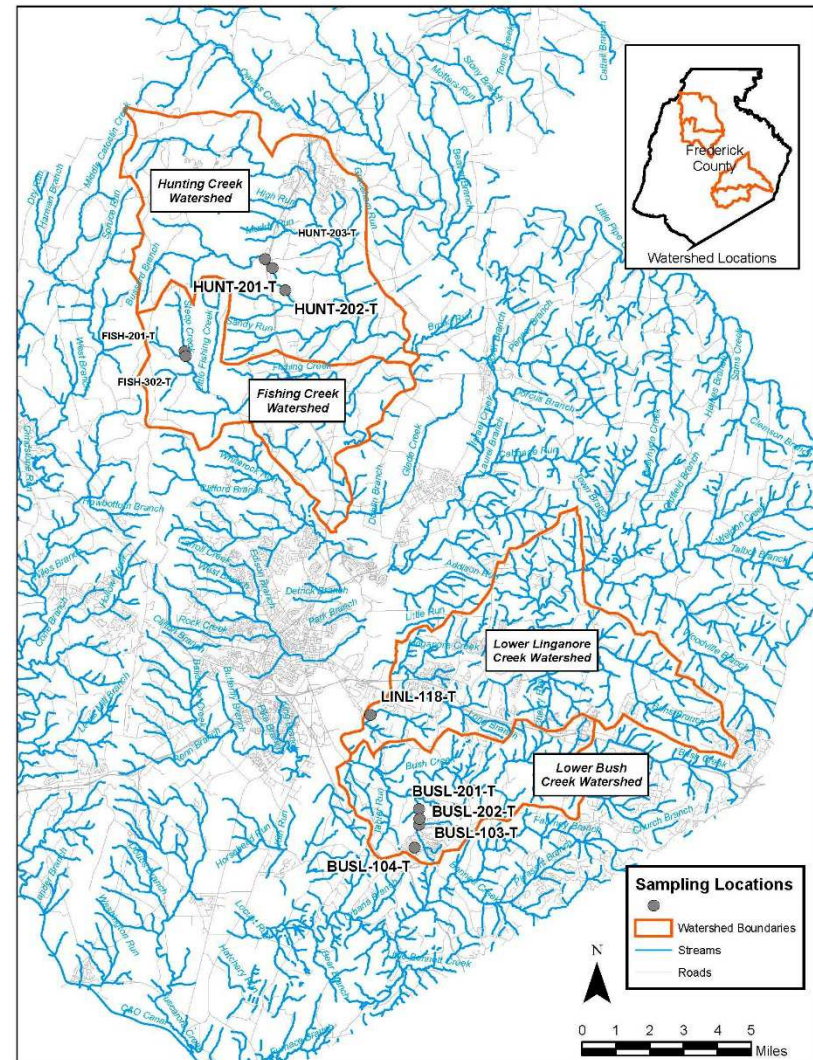
- Water Quality and Stormwater Monitoring
 - Consists of continuous flow monitoring, water quality and water chemistry during storm events and at base flow
- Biological Monitoring mainly follows MBSS protocols
 - Consists of benthic macroinvertebrates, possibly fish, habitat assessment, *in situ* water quality, and/or basic geomorphic assessments

Frederick County, MD

- 50 sites countywide monitored for benthic macroinvertebrates, habitat, *in situ* water quality using MBSS methods
 - *2 to 3 sites per watershed*
- 10 restoration sites monitored in 2016
 - Depending on site, work may include benthic macroinvertebrates, fish, habitat, *in situ* water quality (using MBSS methods), and/or basic geomorph assessments
 - *Includes 4 long-term NPDES monitoring sites*

Frederick County, MD

- Restoration monitoring includes sites within
 - *Hunting Creek*
 - *Lower Linganore Creek*
 - *Lower Bush Creek*
 - *Fishing Creek*



Frederick County, MD

- Water quality and storm monitoring:
2 stations (outfall and instream)
 - Continuous flow
 - Water chemistry, water quality – during baseflow and stormflow events

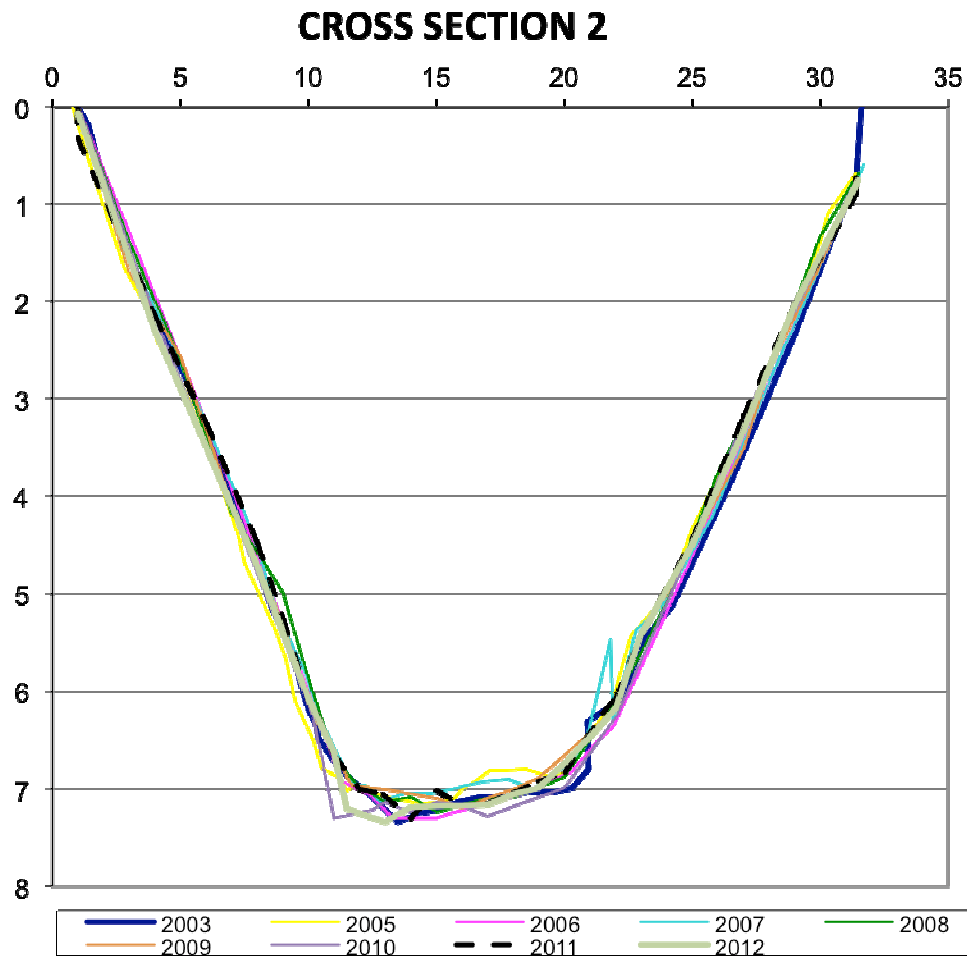


Anne Arundel County, MD

- Benthic macroinvertebrates, physical habitat, and *in situ* water quality using MBSS methods
 - *Church Creek* (4 sites) South River Watershed
 - *Picture Spring Branch* (3 sites) Severn River Watershed



Anne Arundel County, MD



Geomorphology in
Church Creek and
Picture Spring Branch
subwatersheds

- Annual cross section surveys, longitudinal profiles, pebble counts

Anne Arundel County, MD

- Monthly water quality and storm monitoring at *Church Creek* and *Parole Plaza* (South River Watershed)
 - Continuous flow
 - Water chemistry, water quality – during baseflow and stormflow events



Montgomery County, MD

- Variety of Water Quality and Storm Monitoring:
 - *Breewood NPDES*: 2 stations (outfall and instream)
 - Continuous flow and water quality
 - Water chemistry, water quality during baseflow and stormflow events
 - *Colesville Depot*: 2 stations – post-renovation well monitoring
 - Long-term level logging
 - Quarterly water quality and water chemistry
 - Currently performing “during construction” logging

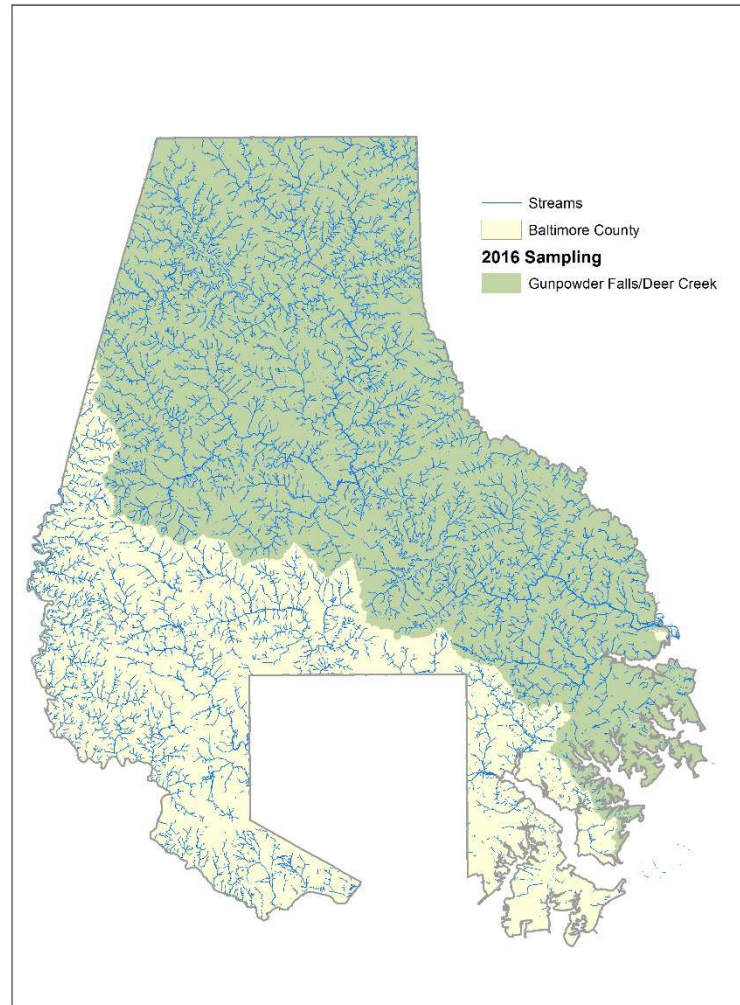
Montgomery County, MD

- Variety of Water Quality and Storm Monitoring (cont.):
 - *Laytonia Park: 8 stations – during construction monitoring*
 - Long term groundwater level logging
 - Quarterly well water chemistry
 - Channel stability monitoring (2X per year)
 - Rainfall logging
 - Artificial turf runoff monitoring for toxicity

Baltimore County, MD

- Countywide monitoring program, alternates each year between Patapsco River/Back River Basin and Gunpowder Falls/Deer Creek Basin (**2016**)
 - 50 random stream sites monitored for benthic macroinvertebrates, habitat, and *in situ* water quality using MBSS methods
 - 25 random tidal sites monitored for benthic macroinvertebrates, *in situ* water quality, and sediment composition

Baltimore County, MD



Countywide Biological Monitoring



Other Entities

- Caves Valley Golf Club, Owings Mills, MD (Baltimore County)
 - Well monitoring (observation wells)
 - Water chemistry – 3 times per year, coinciding with pesticide application



Other Entities

- Commercial Client in Prince George's County, MD
 - 9 Biological monitoring sites on Collington Branch and Black Branch for benthic macroinvertebrates, fish, habitat, and *in situ* water quality (using MBSS methods).

